Returning to Earth: Natural Design for a Cemetery in Otter Tail County, MN

A Thesis Design by Amy Kronbeck



The Problem:

Traditional cemeteries and burial practices are unsustainable. Cemeteries occupy valuable space that can be used by all. People

Thesis Statement:

Through historical and typological analysis, exploration and scrutiny of how cemeteries fit within the framework of landscape architecture results in a better understanding of how future cemetery design should be approached. Assessments of existing cemeteries, will help develop a comprehensive list of program elements to be implemented within the sustainable design alternatives to traditional cemeteries resulting in cemeteries designed for all and provide meaningful connections with deceased loves ones as well as nature.

The Site:



Thesis

Thesis

Site

Glendalough State Park

/ Site

The Research: Case Study Analysis



Guiding Principles:

Remembrance



Democratic



Sustainability



Contemplative



American Cemeteries



Undeveloped Blanche Forest Land Thesis Site

Lake

Blanche

Lake





The Problem

Traditional cemeteries and burial practices are unsustainable. Cemeteries occupy valuable space that should be open to all. People desire a connection with nature in life and in death.



Thesis Statement:

Through historical and typological analysis, exploration and scrutiny of how cemeteries fit within the framework of landscape architecture results in a better understanding of how future cemetery design should be approached. Assessments of existing cemeteries, will help develop a comprehensive list of program elements to be implemented within the sustainable design alternatives to traditional cemeteries resulting in cemeteries that are designed for all and provide meaningful opportunities for remembrance and connections with nature.



The Research

Show me your cemeteries, and I will tell you what kind of people you have.

- Benjamin Franklin



American Cemeteries

Slave cemeteries were often located on owners' land or outside the city in undesirable area. Families handled burial	The Burying Grounds 1775 - 1830 Large numbers of Americans died in American Revolution & from diseases. Cities ran out of room for burials.	Rural Cemetery Mover 1830 - 1855 Cemeteries became valuable green space for citizens of congested urban environments to enjoy nature. Roads and paths followed natural contours on site. Natural features like ponds and mature trees were included in design. Public recreation and gathering was encouraged.	Lawn 1855 - Graves trees a perime gradec	Cemeteries 1917 set in lawn with nd gardens on the eter. Sites were f flat for easier enance.	visual remi death. Colu mausoleun more often) ers laid flat d reducing ce as well as nders of umbaria & ns built	1960 - pr Families b involved a Environm	becoming m	ore dly,
			Country Place Era quality materials, hierarchy, balance	City Beautiful civic improvement, public art	Modernism democratic, abstract, casual	Midcentury Modernism affordable, functional, socially const	Environmental/Ecological De bioremediation, restoration, reclam	sustainable design, native planting Postmodernism playful ornamentation, deconstruct	Green Movement



esign nation

The Research: Case Study Analysis

					Re	emembranc	e				Sustair	nability			Democratic		Contemplative			
Cemetery	Size & Location	Year Built & LA	Memorial Types	Cemetery	Columaria	Ash Interment	Scatter Garden	Mausoleum	Crematorium	Landforms	Vegetation	Materials	Sustainability Features	Indoor Event Space/Chapel	Outdoor Event Space	Paths	Water Feature	Enclosure	Contemplation + Reflection	Restorative
De Nieuwe Ooster	2.7 hectares, Amsterdam, Netherlands	2008-2011, karres+ brands	name plates, memorial stones, um display, events	75 acres traditional cemetery	.15 acre, contemporary, enclosed, infimate	.4 acre with markers	Yes several finemed gardens	Yes	Yes		arboretum with 700 species, hedges, birches	gravel, stone, terrazo, zinc		Yes, small auditorium	Yes	Curvilinear	.2 acres, still with um interment	small scale plots w/hedges, outdoor room, urn wall shield	interior of columbaria, long pool	paths
Hofheide Crematorium	5 hectares, Holsbeek, Belgium	2014, OMGEVING Landscape Architects	name plates, memorial trees, stone markers, name plates	Yes - several different areas, including a children's cemetery	Yes - contemporary, used to screen from traffic	Yes with markers	Yes including a pond for scattering	No	Yes	marshland, plains, woods, berms	orchard, water plants, prairie grasses & flowers	regional ironstone/concrete, Corten steel, granite	rainwater collector system	L	Yes	rectilineor	Yes - throughout the site, still/not running	berms shield roadway	woter	paths. seating
Askim Memorial Grove	3500 sqm, Gothenburg, Sweden	2017, Thorbjörn Andersson with Sweco Architects	name plates	Yes	No	Yes without markers	No	No	No	terraced	crab apple, cherry, acers	granite, iron, gravel, concrete	used existing topography	Yes	Yes	Fectilinear	Yes	granite wall enclosure, sunken site	still pond	seating, views
Lakewood Cemetery Garden Mausoleum	2.5 acres, Minneapolis, MN	2012, Halvorson Design Partnership	name plates	Yes, 240 acre traditional cemetery section	Yes indoors	Yes overlooking a pond	No	Yes.5 acre	Yes	hills/sunken	evergreens, maples, hawthornes, oak, serviceberries	marble, steel, bronze, granite, colored glass, wood		Yes	Yes	rectilinear (curvilinear in cemeter)	Yes - still skim pool (pond in cemetery)		reflecting pool, stairway	1100' path around .35 acre open gathering space, seating
Woodland Cemetery	90 hectares, Stockholm, Sweden	1915, Asplund and Lewerentz	headstones, plantings, columbaria	122 acres forest, 6.5 acres open	1.3 acres with ash interment and plants to create smaller niches	Surrounded by columbaria to create enclosed space	No	No	Yes	5.25 acre clearing,	birches, hedges, weeping elm	flagstone,		many small chapels blend into forest, used as path terminus and wayfinding	Yes	875' flagstone entry path, rectilinear	.15 acre still lily pond	niches, meditation grove	steps, clearing, pond	seating throughout forest, at chapels
Summary			loved ones on some l have several burial o	kind of permanent fixt	ure. Being able to le- eds of many of differe	ave flowers or small to ent belief and values	cess. At a minimum, p okens is also commonl systems. To accomod	y desired by visitors.	Most cemeteries d cremation, burial	sustainability and cre incorporating storm v sustainability. Carefu	tive to the site and sy ating a sense of place water harvesting into a consideration of the e environmental impo	e. Using locally source the site is a valuable site's topography he	ced materials and approach to	paths that are open t	lements, like chapels, to users beyond the be and become importe they are located.	ereaved, these	Known for being quie restorative level. The passing of time, are a platform with which p with nature and with	reflective qualities of Il evident in a setting I leople can experienc	water, the cycle of ea ike a cemetery, whic	ach season, the h provides the



De Nieuwe Ooster Amsterdam, Netherlands









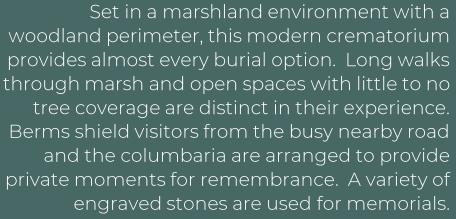
As a historic cemetery, this site provides nearly every possible burial option. There is a still pond for reflection that also provides ash internment within floating urns. Gathering space runs parallel to the pond. Columbaria are arranged to create intimate enclosed spaces that protect from the elements and provide seating. Ashes may be scattered in several gardens with paths and a variety of planting arrangements. Urn burials are covered with permanent memorial stones.



Hofheide Crematorium Holsbeek, Belgium







ARTUARY BORMS







Askim Memorial Grove Gothenburg, Sweden











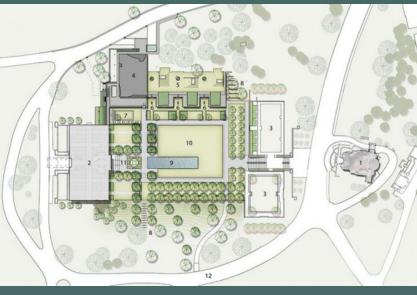
As a sunken garden setting, this site made use of the small bowl-shaped landscape and added terraced lawns for the anonymous interment of ashes. Permanent memorials are provided through engravings on a stone perimeter wall. A small, still pond and seating provide an opportunity for reflection and renewal.



Lakewood Cemetery GardenMausoleumMinneapolis, MN

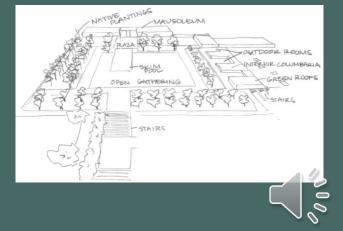




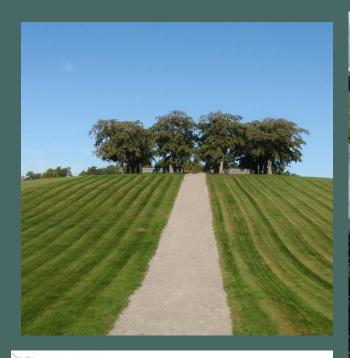


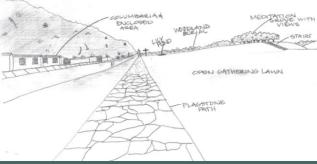
This site is experienced in a sunken garden setting surrounded by buildings or berms. This low area provides a calmness and quiet – separate from the nearby roads and traditional cemetery. A flat skim pool reflects the sky and the trees that run parallel to it. Small outdoor niches provide quiet spaces for contemplation and remembrance while being open to the gathering lawn.





Woodland Cemetery Stockholm, Sweden











Arriving to the flagstone path that is situated with a long wall on one side and wide-open space on the other, the visitor is drawn into the site. A large cross in the distance provides a terminus to the path while the meditation grove sitting atop a hill is a beacon. The view from the meditation grove is the reward for the climb – either via steps or sloped path – which can be seen and felt as a symbol of transcendence. A lily pond at the bottom of the hill reflects the meditation grove, the cross, and the sky. Burials are arranged in the forest and small chapels that reflect the culture of the area are scattered throughout the trees.

Guiding Principles:RemembranceSustainabilityImage: Subscription of the state of the stat

Democratic



Contemplative





Remembrance



					R	emembranc	e		
Cemetery	Size & Location	Year Built & LA	Memorial Types	Cemetery	Columaria	Ash Interment	Scatter Garden	Mausoleum	Crematorium
De Nieuwe Ooster	2.7 hectares, Amsterdam, Netherlands	2008-2011, karres+ brands	name plates, memorial stones, um display, events	75 acres traditional cemetery	.15 acre, contemporary, enclosed, intimate	.4 acre with markers	Yes several fhemed gardens	Yes	Yes
Hofheide Crematorium	5 hectares, Holsbeek, Belgium	2014, OMGEVING Landscape Architects	name plates, memorial trees, stone markers, name plates	Yes - several different areas, including a children's cemetery	Yes - contemporary, used to screen from traffic	Yes with markers	Yes including a pond for scattering	Νο	Yes
Askim Memorial Grove	3500 sqm, Gothenburg, Sweden	2017, Thorbjörn Andersson with Sweco Architects	name plates	Yes	No	Yes without markers	No	No	Νο
Lakewood Cemetery Garden Mausoleum	2.5 acres, Minneapolis, MN	2012, Halvorson Design Partnership	name plates	Yes, 240 acre traditional cemetery section	Yes indoors	Yes overlooking a pond	No	Yes .5 acre	Yes
Woodland Cemetery	90 hectares, Stockholm, Sweden	1915, Asplund and Lewerentz	headstones, plantings, columbaria	122 acres forest, 6.5 acres open	1.3 acres with ash interment and plants to create smaller niches	Consideration of the second	No	No	Yes
Summary				kind of permanent fix ptions to meet the ne	ture. Being able to le eeds of many of differ	ave flowers or small to ent belief and values	okens is also common	people want to leave Ily desired by visitors. date natural burial an	Most cemeteries



Sustainability							
X	\bigcirc						
	Storm Water Capture						
	nabil Native Planting						

			Sustainability						
Cemetery	Size & Location	Year Built & LA	Landforms	Vegetation	Materials	Sustainability Features			
De Nieuwe Ooster	2.7 hectares, Amsterdam, Netherlands	2008-2011, karres+ brands		arboretum with 700 species, hedges, birches	gravel, stone, terrazo, zinc				
Hofheide Crematorium	5 hectares, Holsbeek, Belgium	2014, OMGEVING Landscape Architects	marshland, plains, woods, berms	orchara, water plants, prairie grasses & flowers		rainwater collector system			
Askim Memorial Grove	3500 sqm, Gothenburg, Sweden	2017, Thorbjörn Andersson with Sweco Architects	terraced lawns/bowl	crab apple, cherry, acers	granite, iron, gravel, concrete	usea existing topography			
Lakewood Cemetery Garden Mausoleum	2.5 acres, Minneapolis, MN	2012, Halvorson Design Partnership	hills/sunken	evergreens, maples, hawthornes, oaks, serviceberries	marble, steel, bronze, granite, colored glass, wood	native plants, green roofs, stormwater strategies, on-site well, locally sourced granite			
Woodland Cemetery	90 hectares, Stockholm, Sweden	1915, Asplund and Lewerentz	5.25 acre clearing, hill	birches, hedges, weeping elm	flagstone,				
Summary			sustainability and cre incorporating storm v sustainability. Carefu	eating a sense of plac water harvesting into	mbolic to the culture ce. Using locally source the site is a valuable of e site's topography he act.	ed materials and approach to			

Contemplative

Seating

Enclosure Water

			Contemplative						
Cemetery	Size & Location	Year Built & LA	Water Feature	Enclosure	Contemplation + Reflection	Restorative			
De Nieuwe Ooster	2.7 hectares, Amsterdam, Netherlands	2008-2011, karres+ brands	.2 acres, still with urn interment	small scale plots w/hedges, outdoor room, urn wall shield	interior of columbaria, long pool	paths			
Hofheide Crematorium	5 hectares, Holsbeek, Belgium	2014, OMGEVING Landscape Architects	Yes - throughout the site, still/not running	berms shield roadway	water	paths, seating			
Askim Memorial Grove	3500 sqm, Gothenburg, Sweden	2017, Thorbjörn Andersson with Sweco Architects	Yes	granite wall enclosure, sunken site	still pond	seating, views			
Lakewood Cemetery Garden Mausoleum	2.5 acres, Minneapolis, MN	2012, Halvorson Design Partnership	Yes - still skim pool (pond in cemetery)	shade trees, sunket site, niche rooms	reflecting pool, stairway	1100' path around .35 acre open gathering space, seating			
Woodland Cemetery	90 hectares, Stockholm, Sweden	1915, Asplund and Lewerentz	.15 acre still lily pond	niches, meditation grove	steps, clearing, pond	seating throughout forest, at chapels			
Summary			restorative level. The passing of time, are a	et spaces for rememb reflective qualities of all evident in a setting people can experience communities.	water, the cycle of e like a cemetery, which	each season, the ch provides the			

Democratic



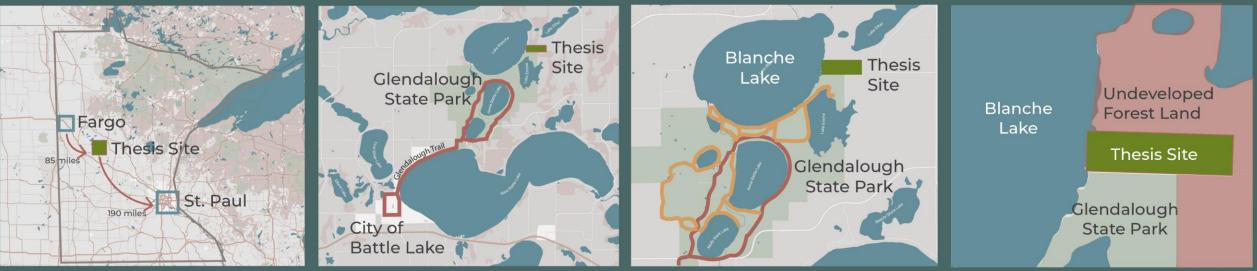
			Democratic					
Cemetery	Size & Location	Year Built & LA	Indoor Event Space/Chapel	Outdoor Event Space	Paths			
De Nieuwe Ooster	2.7 hectares, Amsterdam, Netherlands	2008-2011, karres+ brands	Yes, small auditorium	Yes	Curvilinear			
Hofheide Crematorium	5 hectares, Holsbeek, Belgium	2014, OMGEVING Landscape Architects	L Yes	Yes	rectilinear			
Askim Memorial Grove	3500 sqm, Gothenburg, Sweden	2017, Thorbjörn Andersson with Sweco Architects	Yes	Yes	Fectilinear			
Lakewood Cemetery Garden Mausoleum	2.5 acres, Minneapolis, MN	2012, Halvorson Design Partnership	Yes	Yes	rectilinear (curvilinear in cemetery)			
Woodland Cemetery	90 hectares, Stockholm, Sweden	1915, Asplund and Lewerentz	many small chapels blend into forest, used as path terminus and wayfinding	Yes	875' flagstone entry path, rectilinear			
Summary			By including design elements, like chapels, open spaces, and paths that are open to users beyond the bereaved, these spaces grow in value and become important parts of the communities in which they are located.					

Site Analysis

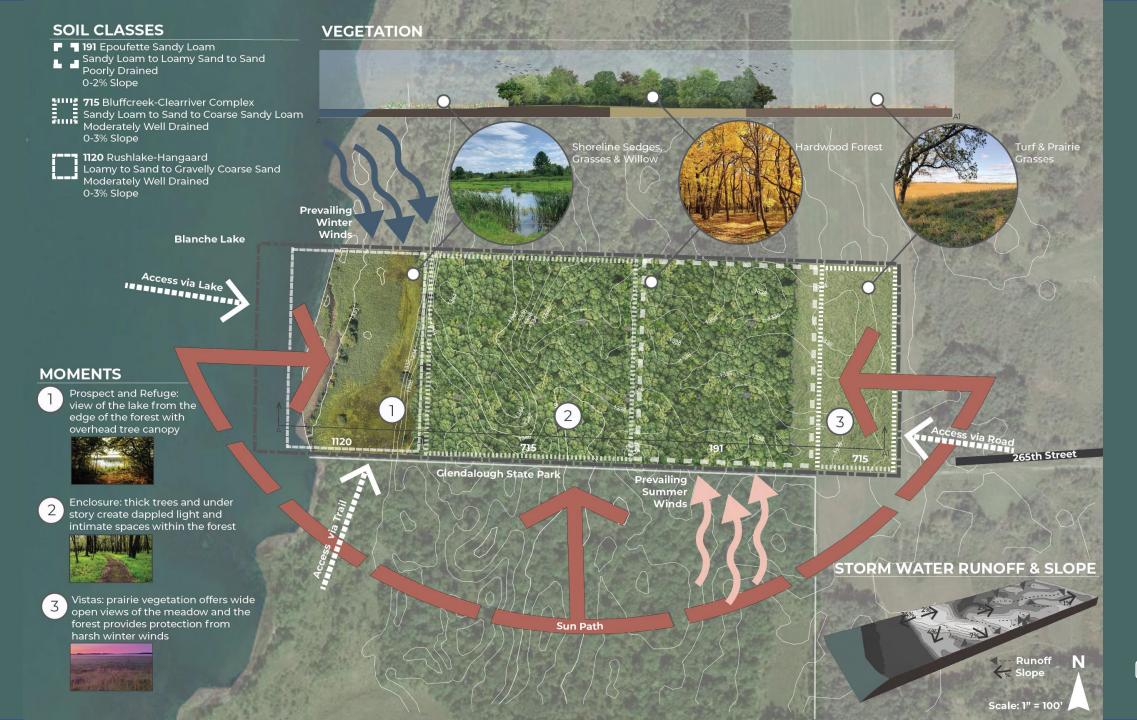
Landscapes of the dead are always, simultaneously, landscapes of the living. -Ken Worpole, Last Landscapes



The Site:



The thesis site is a 30acre plot of land in central Minnesota located 85 miles southeast of Fargo and 190 miles northwest of St. Paul. Battle Lake is the nearest city and features the Glendalough Trail, an 11.8-mile loop that connects to nearby Glendalough State Park. Adjacent Glendalough State Park averaged more than 106,000 visitors over the last two years and offers 9 miles of hiking trails, fishing, canoeing, camping and wildlife viewing. Perched on the east side of the 1228-acre Blanche Lake, this site includes 20 acres of forest, 6 acres of prairie, and 4 acres of riparian vegetation.





SOIL CLASSES

 I91 Epoufette Sandy Loam
 Sandy Loam to Loamy Sand to Sand Poorly Drained
 0-2% Slope

715 Bluffcreek-Clearriver Complex Sandy Loam to Sand to Coarse Sandy Loam Moderately Well Drained 0-3% Slope

1120 Rushlake-Hangaard
 Loamy to Sand to Gravelly Coarse Sand
 Moderately Well Drained
 0-3% Slope

VEGETATION

Sedges, Grasses & Willows

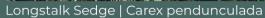
Hardwood Forest

Turf & Prairie Grasses

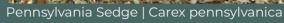
Native Plant Palette Riparian



Reed Canary Grass | Phalaris arundinacea









Native Plant Palette Woodland Trees



 Swamp White Oak | Quercus alba



Native Plant Palette Woodland Understory



Prickly Ash | Zanthoxylum americanum



Meadow Horsetail | Equisetum pratense





Wild Strawberry | Fragaria virginiana



Native Plant Palette | Prairie



Pasqueflower | Pulsatila patens



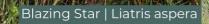
Lead Plant | Amorpha canescens



Prairie Lily | Lilium philadelphicum



Prairie Violet | Viola pad<u>atifida</u>



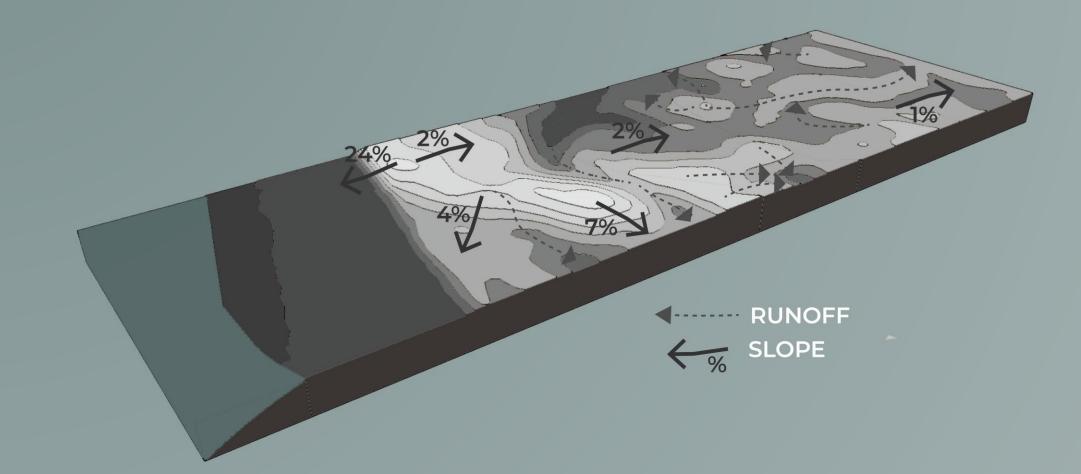
 Bottle Gentian | Gentiana andrewsii

100

Black Eyed Susan | Rudbeckia hirta

Big Bluestem | Andropogon gerardii

STORM WATER RUNOFF & SLOPE







1

2

3

Prospect and Refuge: view of the lake from the edge of the forest with overhead tree canopy



Enclosure: thick trees and under story create dappled light and intimate spaces within the forest 2



Vistas: prairie vegetation offers wide open views of the meadow and the forest provides protection from harsh winter winds



Program & Performance Criteria

Death is a cultural event and societies as well as individuals reveal themselves in their treatment of death.

– J. Farrell, Inventing the American Way of Death



Program

Functions

Remembrance 💊

Pleasure

Contemplation

Design Elements

Paths Wayfinding Water Features Natural Burial Seating Art Chapel Columbaria Scatter Garden Open Space Outdoor Rooms Permanent Memorial Lighting Native Plantings Views



Performance Criteria

Spatial Allocation

Behavioral Performance

Energy Consumption

A variety of criteria will be used in assessing the site design's response and performance. Spatial allocation will inform the design and by following established standards and guidelines, users will have an improved experience. The sustainability of the site will be key to its success. By measuring usage patterns, I will be better able to design for the time of day and year that the site will be experienced. Research shows that the sensory experience is fundamental in contemplative landscapes. Keeping energy consumption in mind during design will help to ensure an environmentally conscious project.

Design Narrative & Project Statement

Cemeteries, as the visual and spatial expression of death, may tell us a great deal about the living people who created them.

– Richard Francaviglia, The Cemetery as an Evolving Cultural Landscape





Materials & Textures Palette



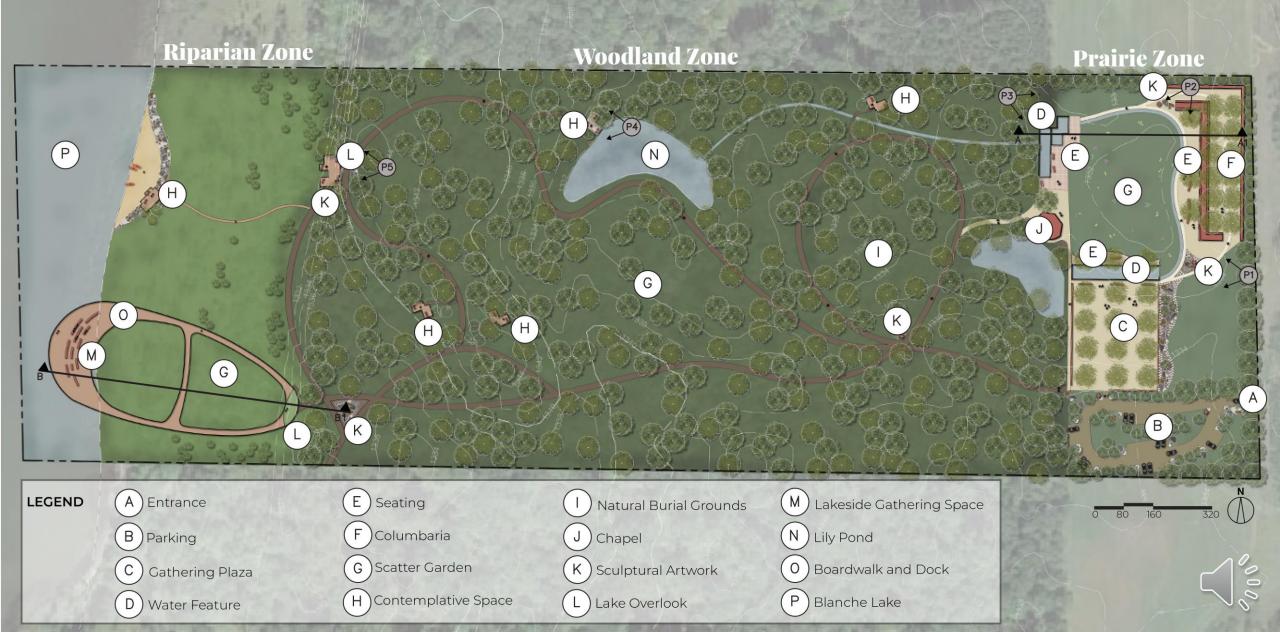


Master Plan

The clearest way into the universe is through a forest wilderness. – John Muir



Master Plan



Placement of Guiding Principle Elements



Remembrance



Sustainability

Local Native Storm Water Materials Planting Capture

Democratic



Contemplative



Prairie Zone





Water Feature and Scatter Garden





Plaza, Scatter Garden & Memorial Wall



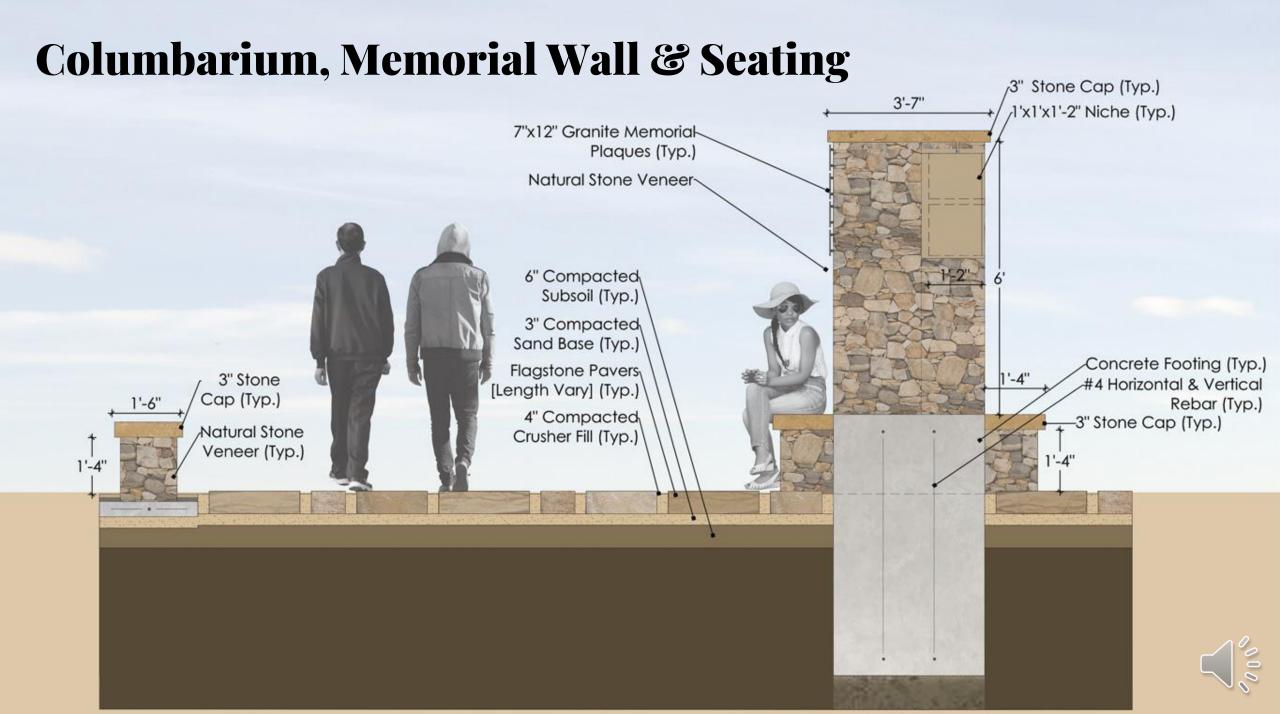
Scatter Garden, Water Feature & Chapel

1 1 11



Prairie Prospect









Prairie Smoke Plant Geum trifllorum



Joe Pye Weed Danaus plexippus



Lead Plant Bo Amorpha canescens Ge



Bottle Gentian Gentiana andrewsii













Big Bluestem Andropogon gerardii

m Bur Oak n gerardii Quercus macrocar



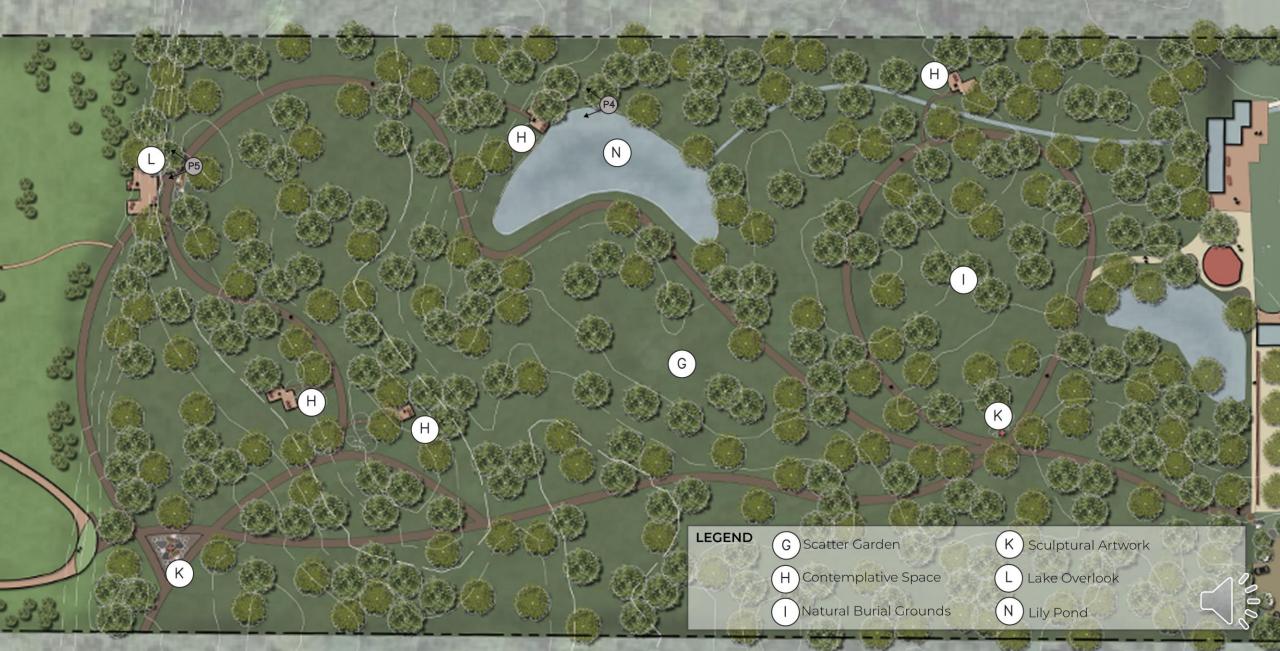
Reflecting Pond & Boardwalk







Woodland Zone



Natural Burial Grave Site

0

Contemplative Space





Woodland Contemplative Space

000





Cattail Typha xbethulona

Reed Canary Grass

Phalaris arundinacea



Longstalk Sedge Carex pendunculada



Bog Birch Betula pumila Red Osier Dogwood Cornus sericea



Meadow Horsetail



Largeflower Bellwort Uvularia grandiflora Equisetum pratense



Tilia americana



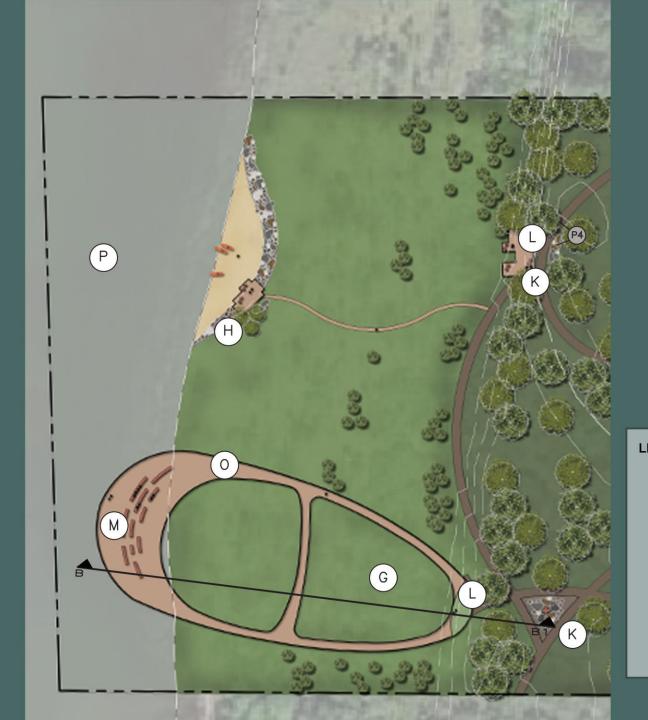


Bur Oak Quercus macrocarpa

Swamp White O Quercus alba



Riparian Zone





Lakeside Overlook





Lake Overlook

000

Design Results



4 Vista Moments



4 Prospect & Refuge Moments



6 Contemplative Spaces







3 Water Features



800 sq. ft. of Memorial Wall



6 Chapels & Gathering Spaces



735 Natural Burial Plots



